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ABSTRACT

This 2-part report describes the present scope of the University of Cincinnati Central Library bibliographic database retrieval service. The first section discusses searcher training, records maintenance, search aids, expansion of database service, searcher time, user satisfaction, and promotion. The second presents statistical data related to database use, vendors, users, searcher experience, and cost recovery. Appendices contain sample search records and a list of databases arranged alphabetically by acronym. (FM)

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December 18, 1980

TO: Cecily Johns
Head, Reference/Bibliographic Services

FROM: Committee for Central Library Online Searching
Randall L. Roberts, Chairperson; Emily Grimm;
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University of Cincinnati, Central Library, Computerized Bibliographic Retrieval Services: Evaluative Report for the Period of July, 1979 - August, 1980

IR009310

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Randall L. Roberts

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

On May 1, 1979 the Committee for Central Library Online Searching submitted its report on recommendations for the implementation of a bibliographic database retrieval service from the Central Library. The Central Library now offers a very active online search service, and the Committee for Central Library Online Searching--whose members constitute the Central Library group of searchers--has conducted over 300 searches since the first database search from the Central Library in July, 1979. This includes 256 library user generated searches through August, 1980.

With so many library users depending on the Central Library's online search service and because the Committee anticipates a very rapid growth in demand for bibliographic database produced bibliographies, it is important to review and evaluate this early and developmental stage of the online search service.

It is the hope of the Committee that this report will facilitate a greater understanding among those concerned with the development and provision of these services about not only the volume and diversity of services provided but also about the myriad activities and concerns which are so intricately, though not always conspicuously, related to bibliographic database retrieval service. Furthermore, to the extent that this review describes the present scope of Central Library bibliographic database retrieval service, it also serves as a point of reference from which the Committee can plan improvements and expansion of this service.

The report is divided into two main sections. The first section is primarily an expository report on the nature of the Central Library bibliographic retrieval service, though comments and suggestions for improvements in service are included. The first section is also instructive in the sense that it facilitates the reader's understanding of the second section, the statistical report of services. This segment of the report is a statistical record and analysis of the Central Library's bibliographic database retrieval service and is followed by some brief concluding remarks.

Searcher Training

In its planning document the Committee strongly recommended the use of formal instruction for the most effective training of Central Library searchers. Notwithstanding the absence of a comprehensive plan for achieving this goal, formal training of searchers in the theory and use of online bibliographic database systems was accomplished. The searchers have, in fact, had an impressive amount of training in a very short period of time. Very instrumental was the Cincinnati Online User Group which sponsored seven major seminars in 1979 - 80, and the Committee anticipates an even greater role for COUG in the future.

It should be noted at this point that searcher training beyond that which is required for the development of rudimentary searching skills will be required continuously. Vendor update training, for example, is often desirable because of major changes in vendor software. Very often it is also desirable to receive database specific training when complex databases are added to the Central Library database service. Major new developments in the field of bibliographic database retrieval are occasionally reason to attend

appropriate workshops or seminars. The point to be made here is database training is continuous though the intensity is much less than that required during the early developmental stages of a bibliographic database retrieval service.

Because of the relatively high volume of training sessions required during the incipient stage of a four searcher run bibliographic database retrieval service, much of the training necessitated visits to out of town training sites. Over 30 percent of the training was at out of town locations. In the future, however, more of the training sessions should be available on a local basis. However, the timing of such activities might not coincide with the training requirements of individual searchers, thus making it essential for occasional out of town training. Such training involves expenses, as does some of the local training, and funds will be required to cover these expenses. The Committee's budget recommendation report (March 27, 1980) specified these needs.

The following is a list of relevant individual searcher training:

Searcher and training	Location	Date
Anne Dayanandan		
Lockheed Introductory training	Chicago	July, 1979
BRS training	Cincinnati	September, 1979
Data Courier	Cincinnati	November, 1979
Management Contents	Cincinnati	December, 1979
Disclosure	Cincinnati	June, 1980
Predicasts	Cincinnati	August, 1980
Exerpta Medica Workshop	Cincinnati	September, 1980
Emily Grimm		
Lockheed Introductory training	University of Pittsburgh	September, 1978
BRS Introductory training	Columbus	Summer, 1979
NCMH/Psy. Abstracts training	Columbus	October, 1979
Lockheed Business	Cincinnati	March, 1980
ISI seminar on SSCI	Cincinnati	May, 1980
Disclosure	Cincinnati	June, 1980
Dialog Update	Dayton	August, 1980
Randy Roberts		
BRS software workshop	Columbus	September, 1978
BRS introductory workshop	Columbus	Summer, 1979
NCMH/Psy. Abstracts training	Columbus	October, 1979
Data Courier Workshop	Cincinnati	March, 1980
ISI seminar on SSCI	Cincinnati	May, 1980
Chicago Online User Group	Chicago	August, 1980
Excerpta Medica Workshop	Cincinnati	September, 1980

Searcher & Training (cont.d)	Location	Date
Wahib Nasrallah		
Lockheed training seminar	Chicago	July, 1979
Management Contents	Cincinnati	December, 1979
Data Courier	Cincinnati	November, 1979
Lockheed Business	Cincinnati	March, 1980
ISI seminar on SSCI	Cincinnati	May, 1980
Chicago Online User Group	Chicago	August, 1980
Predicasts	Cincinnati	August, 1980

The decentralized searcher approach which has been employed by the Committee has worked well, and considering the diversity of disciplines served by the Central Library a centralized searcher approach would not have been as effective. The use of a group of searchers has permitted two kinds of specialization, one which is exploitive and the other opportunistic. In the first instance, decentralized searching has allowed searchers with subject expertise to serve users in those areas where the searchers have an advanced degree or education. In the second instance, because of the proclivity for specialization among all the searchers, the level of expertise by database varies considerably--that is, the opportunity exists to specialize to a limited degree by database. Such a skills dispersion is a real advantage for the Central Library because of the tremendous range of disciplines represented in a business, education, social sciences, and humanities library. There is simply such an overwhelming number of potentially useful databases in this wide range of disciplines that intersearcher consultation is necessary. Centralized searching, on the other hand, would be more appropriate in a situation where user demand is much less diversified.

Records Maintenance

An inherent, time consuming, and frequently vexing, behind-the-scenes responsibility of any bibliographic database retrieval service is the records keeping function. The following enumeration provides a detailed explanation and evaluation of this function at the Central Library.

Search Request Form (Appendix A)

This form is one of the initial steps in the process of a computer search. The patron provides most of the basic information, both identifying the user and describing the question(s) to be searched. The form becomes part of a permanent folder for each user.

Log Book (Appendix B)

When a search is performed, or any online activity takes place, the searcher makes an entry in the Log Book, providing the particulars of what databases were searched, the amount of time spent on each, the number of citations retrieved, and the cost of the search. The Log provides a record of searching activity and basic accounting information. The Log is used to calculate cost of the search for the patron, to verify the invoices from the vendors, and to evaluate and keep track of searching activities--including, for departmental reports, the provision of monthly statistics of searches performed.

Records Maintenance (cont'd)

Billing

Two forms are used for billing purposes according to the method of payment: the Library Cashier's payment form and the NIU accounting form. The procedures with the Library Cashier's office are now working smoothly; they once did not. The searcher retains a copy of whichever form is used and it is kept in the user's search folder.

Housekeeping File

This file basically contains copies of the forms used by searchers; it also contains the user's search folders, both in progress and those recently completed. In addition, the Committee keeps copies of the BRS and Lockheed monthly invoices, instructions for the billing procedures, the computer terminal manual, and any other bit of housekeeping necessity.

User Search Folders

The material used during a search, including the search request form, a copy of the receipt, and usually some form of the strategy used or online printout is retained in user search folders which are arranged by the name of the user. This is the only location where information regarding the subject of the search and the user's address and phone number are kept.

Comments

After the production of several editions of the various forms used by searchers, the Committee seems to have come to a workable format for each. At times it is hard to make the transition from one edition of a form to another, especially for definitions of categories of information, but this problem should be eliminated with consistent use of the same form. Procedures for billing, invoice verification, and statistics tabulation have likewise undergone developmental stages and now seem to be operating smoothly. Procedures for users to pick up their search when the searcher is not available are still unclear and sometimes confusing for other staff members. A procedure to eliminate this confusion has been developed, but a delay in the acquisition of some office supplies has prevented a resolution of this problem.

For searchers, a problem seems to be the amount of time required to accurately maintain records. To minimize this problem, the Committee has attempted to simplify forms and procedures as much as possible. The alternative of delegating some of the record keeping to a nonsearcher does not seem practical. Although the searchers all feel very burdened by the need for housekeeping and record keeping activities, the Committee's members will continue to share in and simplify the tasks until a solution is found.

Search Aids

For purposes of this report "search aid" is defined as any printed information supplementing the file descriptions in the BRS and DIALOG manuals which assists the searcher in preparing a database search. Search aids include: manuals, thesauri, information leaflets, newsletters and journal articles on specific databases. Sometimes the printed index or articles on searching several databases in a subject area serve as search aids in the absence of or supplementing the aforementioned search aids. With the beginning of online searching in July, 1979 the Committee anticipated the development of a search aid collection would: improve searching quality by providing information not given in vendor manual database descriptions, have

Search Aids (cont'd)

a training value supplementing existing training on specific databases offered by vendors, online users groups, professional associations, and database producers; and sometimes obviate database specific training, thus saving time and costs associated with such training.

The Committee's current Search Aids Library consists of three parts: 1) the Search Manuals and Thesauri Collection, 2) folders containing information on specific databases in the Online Information File, and 3) folders containing information on several specific databases in a single subject area, e.g. databases on business.

The material in the folders in the Online Information File on single databases or on multidatabase searching is primarily journal articles from Online or Database Magazine and information leaflets by the database producer or online vendor offering the database. Except for the cost of photocopying articles, most of these items are free. In a few cases a regular newsletter is published on a specific database. The Online Information File houses 35 folders on specific databases and on several databases in single subject area.

The Search Manuals and Thesauri Collection, housed on the shelving behind the terminal area, now contains about 25 titles. Last year about 28 items were ordered, 23 items were received, and 4 titles have yet to arrive. The cost of the titles ordered was $326.00; a few search aids were free. Titles ordered for the Search Manuals and Thesauri Collection are usually added uncataloged unless a printed counterpart of the index or thesaurus already exists in the Reference Collection.

Selection of search aids is contingent upon the Central Library's provision of access to a particular database and the recommendations of individual searchers. The principal sources of acquisition of search aids are: vendors' manuals and newsletters, Online, Database, CLASS Online Reference Aids, publishers brochures, training sessions, and individual searcher recommendations. There are some problems involved in selecting and acquiring search aids. Identifying available search aids is time consuming and occasionally difficult. Moreover, the quality of the search aids is uneven, and some are simply not worth the price asked. A related problem is the failure of search aids producers to update search aids as file structure changes.

A recent survey of the Committee's searchers indicates that all the searchers use the Search Aids Library although frequency of use and sections used vary. The most used section is the Search Manuals and Thesauri Collection. Use of the database specific information and the printed counterparts ranks next in frequency. The multiple database files in subject areas are only occasionally or never used. Searchers use of the Search Aids Library appears to be influenced by the searcher's familiarity with a database and the complexity of a particular search. All searchers seem to find at least one section of the Search Aids Library useful.

Comments

In general, the Committee believes the Search Aids Library serves its intended purpose. That is, the Search Aids Library provides the comprehensive information necessary for the provision of high quality searching. Moreover, the availability of these aids does supplement vendor training sessions and occasionally serves in lieu of such training--though the obviation of formal training sessions is more a function of fiscal reality than of an actual pedagogical advantage.

Comments (cont'd)

However, the Search Aids Library has not been without problems; during 1979-80 the two major problems relating to search aids have been budget and the ordering process. The latter has been resolved by working out special ordering procedures for search aids so that they did not get lost in the Acquisitions Department as searching problems since most of the search aids are not published by conventional publishers and must be ordered directly from the database producers. The budgetary problem was resolved by charging the cost of search aids against the general monograph fund. Future fiscal difficulties concerning acquisition of search aids can be prevented if the Committee's online searching budget is approved.

The increasing size of the Search Manuals and Thesauri Collection has, as indicated by the search aids use survey, necessitated the development of an organized arrangement of the materials in this collection, and the new arrangement will be either 1) alphabetical by title for all items or 2) alphabetical by title within broad subject areas. In either case, organization will be acquired, and ease of use will be enhanced.

The remaining problems of identifying the availability of search aids and the determination--at least for some search aids--of whether those available are worth their asking price has yet to be resolved. Regarding multi-database articles, there is a question of whether it is worthwhile to continue to expend time searching for and copying articles on multiple database file searching when these are rarely or never used.

Expansion of Database Service

In July, 1979 the Central Library started searching seven databases offered by Lockheed Information Systems (LIS) and Bibliographic Retrieval Services (BRS). (More information on vendors of bibliographic databases appears later in the "Statistical Report.") The following databases were the core databases offered on a regular basis: ABI Inform, Comprehensive Dissertation Index, ERIC, Management Contents, Psychological Abstracts, Social Sciences Citation Index, and Sociological Abstracts. These databases were selected on the basis of reference/bibliographer prediction of interest in online searching, as well as predicted interest as perceived by the online searchers. Because all four searchers were limited in actual online searching experience, it was decided to charge half price for searches until January, 1980, as well as to limit the number of databases to seven.

By spring quarter, when the database brochure was distributed, 48 databases were listed as being searched by the Central Library Bibliographic Retrieval Service with other databases being searched at the discretion of the individual searchers. The following list shows the number of databases searched--between July, 1979 and August, 1980--by subject area:

Business and economics	5	(ABI, ECON, FTIN, MC, PROM)*
Education	2	(ERIC, ECER)
Psychology	2	(PSYC, NCMH)
Political science	1	(USPSD)
Sociology	1	(SOC)
History	2	(AHL, HA)
Library science	1	(LISA)
Philosophy	1	(PHIL)
Medicine and psychiatry	2	(MESH, PREM)
Interdisciplinary**	9	(AGRI, BOOK, CAIN, NTIS, NYTS, PAIS, SCI, SMIE, SSCI)

*Complete title for database acronyms are listed in Appendix C.

**This list excludes AACT, CROS, MSGS, and NEWS.

Comments

Presently the Central Library is not searching bibliographic databases offered by Systems Development Corporation (SDC), nor is there searching on numeric databases offered by ADP Network Services, Chase Econometric Associates or Data Resources, Inc., etc.

Given the response of users to online searching it seemed appropriate to survey the databases offered by SDC to determine which databases are unique to SDC. This survey resulted in the following list of databases not currently available from BRS or LIS:

Accountants Index
American Statistics Index*
Canadian Business Periodicals Index
Canadian Newspaper Index
Congressional Record Abstracts
Federal Register
Grants Information System
Labor Documentation
LIBCON
Safety Science Abstracts

The Committee plans to investigate the relative importance of these databases with the ulterior motive of determining the need for the addition of a third vendor, SDC.

An additional problem is the need to develop a procedure for periodic revision of the Committee's database brochure, necessary because of changes in presently offered databases and, more importantly, because of database additions to the brochure. A word processing approach to brochure production should be explored as a solution to this problem.

SEARCHER TIME

The amount of time spent by searchers in completing a computer search is difficult to measure accurately. From the time the request is made until the time contact with the parton has ended, several steps have occurred, each requiring varying amounts of time and by no means all in one block of time. The components of a search, from beginning to end, generally consist of the following: a user interview, usually in person but it also can be by telephone; preparation of search strategy; occasional consultation with colleagues; online time; discussion of search logic and results of the search with the patron; time spent recording the search, computing the costs, etc.; receipt and review of the search, usually there is a printout; contacting the user and delivery and receipt of payment for the search; and any further follow-up the user or searcher may desire. Of course the complexity of a search is a variable which directly influences the amount of time required for each of these search components.

*This database may soon be available on LIS.

The Committee has not tried to keep track of the amount of time spent on each search, but informal estimates indicate a range from one to four hours per search and an estaimated average of two hours per search. Most searches take a minimum of one hour.

The aforementioned analysis of searcher time includes only the time spent on actual requested searches. Also inherent in offering the service is a constant process of keeping up to date with the rapidly changing field, attending workshops and seminars, communication among the searchers who comprise the Committee, housekeeping necessities such as reconciling the invoices, ordering and receiving search aids, updating search manuals, developing promotional literature, publicizing the service, and many other related activities.

Comments

The time spent on database service activities has become a major part of each searchers' job. There is a maximum volume of searches that an individual can undertake, and-though individual overloades can be reduced or even averted by redistribution of search load within the Committee--if the requested volume exceeds the Committee's maximum, the Central Library may frustrate or lose users because they can not wait. Should such an overload occur, the Central Library would be compelled to give preference to users from the University of Cincinnati.

In order to handle the volume of search requests presently occuring plus an expected increase during 1980-81, the Committee vigorously advises the maintenance of a minimum of four searchers for the present level of computer bibliographic retrieval demand with the addition of a fifth searcher early in 1981 to meet the anticipated increase in demand.

User Satisfaction

To date, the Committee has not attempted to quantify or even collect information on user satisfaction with the Central Library's bibliographic retrieval service. Though this is an area the Committee intends to address very soon, there is already sufficient evidence from which some tentative, albeit general, conclusions may be drawn concerning user satisfaction. Two phenomena in particular are indicative of at least a positive regard for the Central Library database service. First, the Committee has experienced a significant number of repeat users--each occurence for which it is reasonable to assume the user is sufficiently satisfied to justify the incurrence of significant costs for additional searches. The second, even more convincing, indicant of user satisfaction with Central Library database service is the growth of the service itself. Until the spring of 1980 there was no public announcement of the service, yet the surge of demand for database produced bibliographies was very rapid. User awareness of both the existance and the quality of Central Library bibliographic database service was almost entirely dependent on word-of-mouth communication among users. The significant growth of database service prior to the Committee's official announcement presupposes a high degree of user satisfaction inasmuch as a population of dissatisfied users would have been more likely to contribute to little or no growth in demand

for the Central Library's database generated bibliographies.

However, as previously indicated the Committee intends to explore the possibilities of querying users for information which might contribute toward a further enhancement of the database services' responsiveness to user needs.

Promotion

The growth or volume of the Central Library Bibliographic Retrieval Service has been controlled and has been conducive to the development and refinement of searching skills without, except for occasional peak periods, overloading individual searchers. Contributing to the controlled growth has been the Committee's use of restraint in promoting the service. The first stage of promotion was, as previously indicated, by word-of-mouth. During the spring of this year, the Committee produced and distributed a brochure to academic departments and selected administrative offices. Promotion has continued through the announcement of the database service in various library and bibliographic instruction classes. The Committee has been reluctant to employ any additional, more aggressive, promotional efforts for fear of creating a demand overload. However, the Committee intends to explore the various areas of promotional activity once an acceptable level of searcher personnel is established to meet projected increases in demand for bibliographic database retrieval service.

STATISTICAL REPORT

Expansion and development

When the Central Library initially offered a bibliographic database retrieval service in July, 1979, seven bibliographic databases were made available to Central Library users.* The Committee felt this core group of databases would adequately satisfy the bibliographic demands of the majority of the service's early users and that it would constitute a managable group of databases that would not overtax the learning acquisition capabilities of the four neophyte searchers of the Committee. There was, however, the inexorable addition of new databases as the searchers increased their software skills and as they attempted to improve bibliographic access for increasing numbers of users.

By December 31, 1979 the Central Library searchers had provided users access to 15 different databases, an increase of 88 percent over the original core group. The most recently measured expansion--as of August 31, 1980--shows an increase to 28 databases for which Central Library searchers have provided access; this is an increase, which occured in 14 months, of 250 percent over the original group of 7 databases.

The figures in Table I demonstrate both the volume and the diversity of the Central Library bibliographic retrieval service. The numbers displayed are connect hours taken to the hundreth of an hour, and they represent the amount of online time spent accessing a specific database or sum of databases. On NTIS (National Technical Information Service), for example, the total amount of online time spent in accessing this database over a 14 month period by all four searchers is 1.67 hours. Of the 32 databases represented in Table I, one (NEWS) is used for vendor news, one (AACT) is used for accounting information, one (MESG) is used for vendor-searcher communication, and one (CROS) is used as an index to BRS databases. The remaining 28 databases are literature based, bibliographic databases responsive to the entire range of software commands offered by either one of both vendors (BRS or DIALOG) used by the Central Library. The use of these 28 bibliographic databases and the CROS database involved 92.25 connect hours of searching.

An examination of the connect hour totals in Table I reveals the following list of high use databases:

ERIC	41.46 connect hours**
PSYC	13.56 connect hours
NCMH	9.31 connect hours
DISS	5.44 connect hours
ABI	3.04 connect hours
NTIS	1.67 connect hours
MESH	1.31 connect hours
BOOK	1.10 connect hours

These figures suggest there is a high demand for database produced bibliographies in the areas of education, psychology, and business. The statistics also seem to reflect a moderate demand for dissertation searches as well as the significant use of a database for book literature--primarily used as a collection development aid.

*Searching on LIS databases did not begin until October, 1979.

**Connect hour is a measure of online time; it is not CPU time.

Table I

Database Connect Hours (Chrs) for Central Library Searchers
July, 1979 - August, 1980

	ABI	AACT	AGRI	AHL	BOOK	CAIN	CROS	DISS	ECER	ECON	ERIC	FYIN	HA	LISA	MC	MESG	MESH	MCMH	NEWS	NTIS
Anne Dayenandan							1.03	.22			3.33			.96			.29	.65	.14	.20
Emily Grima	.49	.23		.25	.56	.04	4.52	4.69	.79		35.88		.11			.61	.27	3.60	1.05	
Wahib Nasrallah	2.44		.10					.01		.10	.61	.44			.31				.17	.29
Randy Roberts	.11				.54		2.01	.19	.07		1.64						.75	5.06	.67	1.18
Total	3.04	0.23	0.10	0.25	1.10	0.04	7.23	5.44	0.86	0.10	41.46	0.44	0.11	0.96	0.31	0.61	1.31	9.31	2.03	1.47

	WYTS	BRIS	BNEL	FREN	FROM	PSYC	SBF*	SCI	SMIR	SOC	SSCI	USPSD	Total Chrs.
Anne		.33		.65		.52				.67	.03		8.82
Emily	.02			.10		4.74	.03				1.09		59.07
Wahib		.33	.14		.03	.51		.10		.35	.08	.09	6.10
Randy		.16		.32		7.79			.15		.49		21.13
Total	0.02	0.62	0.14	1.07	0.03	13.56	0.03	0.10	0.15	1.02	1.69	0.09	95.12

*SBF is no longer available

Though the connect hour figures are measures of database use and, as illustrated above, may be used to draw conclusions about the level of demand for specific databases based on users' bibliographic needs, the figures must be evaluated with an understanding of the various characteristics of each database. It is obvious, for example, that ERIC is the most heavily used database, indicated above and in Table I, but what is not so apparent is the cost of searching ERIC. ERIC is one of the least expensive databases offered by the Central Library, and, as a result, searches on ERIC are characteristically longer than searches on more expensive databases. There is very likely a positive correlation between the cost of a database and the amount of time accessing a database. Though no such correlation was actually calculated, that hypothesis can easily be inferred from a perusal of the raw data in the Committee's log of searches. Other variables such as level of software sophistication for each database, searcher competency, and type of user also affect the connect hour/database statistic; but these influential variables notwithstanding, the reader may confidently use the Table I figures to draw valid, though general, conclusions such as ERIC, PSYC, NCMH, DISS, and ABI are the five most heavily used databases, and these databases constitute approximately 75 percent of all the searching.

However, just as it is true that a highly used relatively small part of a library's collection is responsible for the majority of library patron use, i.e. circulation of that collection, it is also true that a small group of databases will receive the majority of use within a large group of databases offered. Whether the issue is a collection of books and journals or databases, the information accessed from the larger group which is less frequently used is, nonetheless, essential to the research needs in a university, and the statistics in Table I do bare witness to a significant use and demand for a wide range of bibliographic databases representing a broad spectrum of interests in business, education, the social sciences, and, to a limited extent, the humanities.

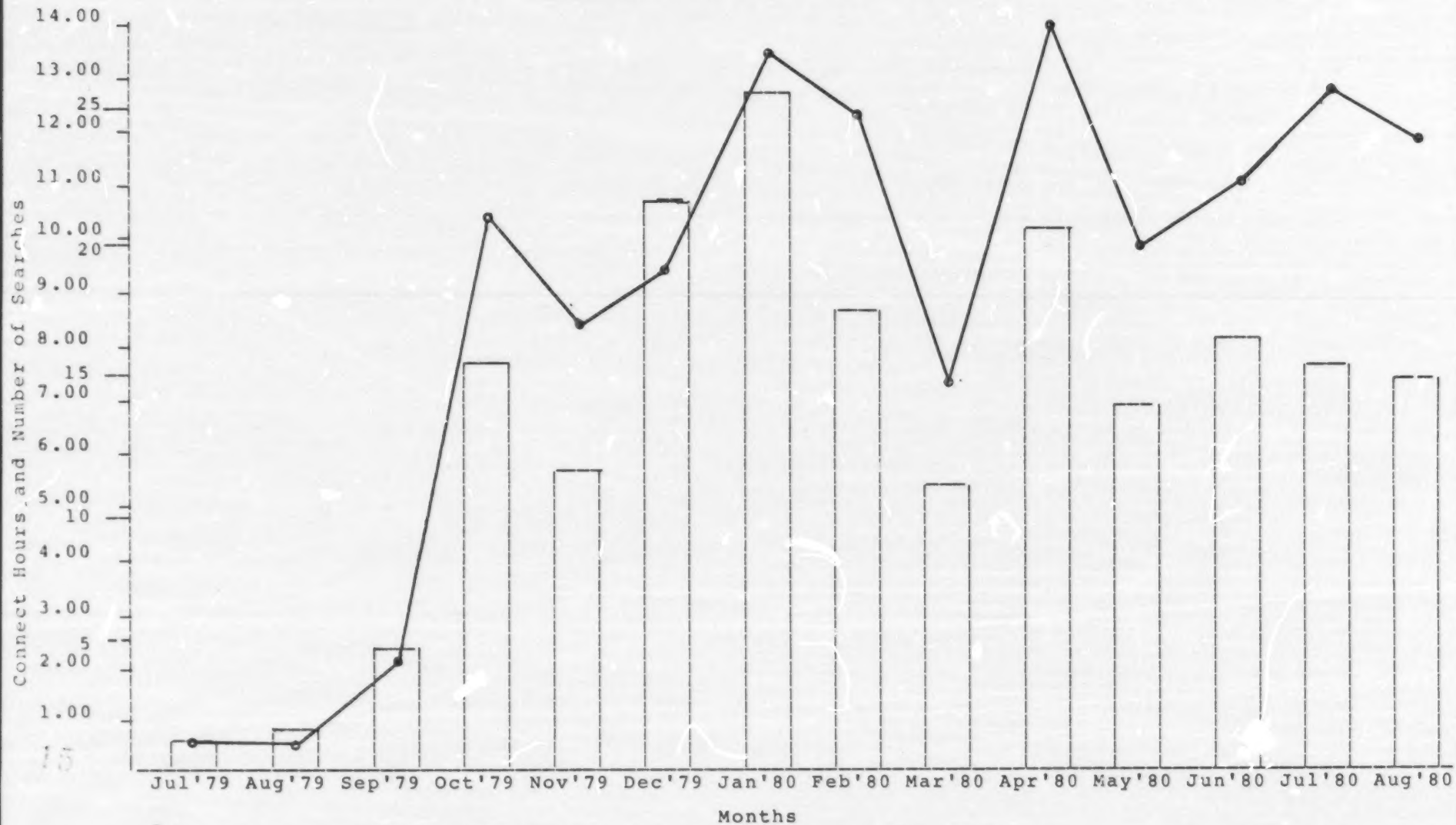
The growth of Central Library bibliographic retrieval services is not only demonstrated by the expansion of databases. Expansion of databases is, in this case, an indirect measure of growth as it reflects not only increased searching volume with its concomitant diversity of demand but also enhancement of services. That is, as the searchers became more confident in their searching skills they elected to offer a wider range of databases.

The most direct measure of growth, at least in the sense of production, is volume of searching. Volume of searching for this report period is indicated by two measures: 1) number of searches (each search being represented by a distinct log number and reflecting a single user contact, though that contact will usually involve a multidatabase search and, on infrequent occasions, distinctly different searches) and 2) cummulative connect hour time. Of these two measures, both shown in Figure A, the number of searches is the better indicant of volume of Central Library searching activity. It is also a very good index of time consumption, and its utility in this respect will be explained subsequently.

An examination of Figure A reveals it took only four months for the Central Library's bibliographic retrieval service to run at a moderate pace. Thereafter, the service continued at a moderate volume though the graph shows oscillations in demand which themselves reflect the inconsistency of demand for

Figure A

Central Library Bibliographic Database Service: Connect Hours[a] and Searches[b] by Month
July, 1979 - August, 1980 [c]



[a] Connect hours illustrated with bar graph; expressed as decimals

[b] Searches illustrated with line graph; expressed as integers

[c] Does not include searches on NEWS, MESG or ACCT

searches which might be expected of any new service. However, some of the inconsistency is a product of the fluctuations in student and faculty population due to the nature of the academic calendar.

Between October and December of 1979 the Central Library averaged 19 searches a month. From January through August of 1980 the Central Library averaged 24 a month and this including the summer months which are statistically slower months for reference services. Demand is expected to continue to increase, and the liklihood of realizing an average of 40 to 45 searches per month during the last quarter of 1979 is very good.

Any sizable increase in searching volume will have a significant impact on the Central Library searchers. As indicated previously, the number of searches conducted per month serves as an index of searcher time consumption. In an earlier part of the report (page 7) the concept of "searcher time" was explained. In that section of the report a multitude of activities which are involved in the execution of a single search were described. The estimated average amount of time that a searcher contributes to perform all these activities, including the online time, is just under 2 hours. Using this figure as a constant it would be very easy to multiply the index figure (number of searches per month) by 2 to arrive at an approximate composite time required of the Central Library searchers by month. This composite figure could be manipulated in a variety of ways to project personnel needs, limits of service, etc. for the Central Library bibliographic database retrieval service.

In light of the anticipated continuing increase in volume of searches such projections will be necessary. The Committee will attempt to significantly refine the time consumption per search estimate to produce a relatively accurate measure of central tendency which could be used with the search volume index in the manner described above.

One of the more interesting phenomena illustrated by the graph in Figure A is the consistent separation between the points on the line graph representing number of searches and the bar apices of the bar graph representing connect hours for February, 1980 through August, 1980 in contrast to the generally proximate relationship for these two measures from July, 1979 through January, 1980. Though several variables may have contributed to this effect, the evidence certainly invites the hypothesis that searching efficiency increased.

Vendors

There are three major commercial vendors of bibliographic databases: Bibliographic Retrieval Services (BRS), Lockheed Information Systems (LIS), and System Development Corporation (SDC). The Committee's planning report recommended two vendors, BRS and LIS, be employed in the beginning stages of the Central Library's bibliographic retrieval service. The arrangement with BRS and LIS has enabled the Central Library to offer an increasingly diverse group of bibliographic databases and at very reasonable costs for the most frequently used databases. Moreover, the use of both BRS and LIS makes possible certain decision making capabilities relating to software choices which may be desirable depending on search inquiry requirements. At the time of this report three searchers--Anne Dayanandan, Wahib Nasrallah, and Emily Grimm--were trained on Lockheed's Dialog, but only Anne and Wahib did any significant amount of searching on Dialog. Three searchers were trained on BRS: Anne, Emily, and Randy Roberts.

For the period covered by this report--July, 1979 through August, 1980--the majority of searching was done through BRS. Of the 95.12 connect hours of searching, 82.21(86.4%) were on BRS and 12.91 (13.6%) on LIS.* However, it should be noted that vendor usage disparity is not quite as large when "housekeeping" databases were excluded and when the number of searches rather than connect hours is the statistic under analysis. In this case, 198 (77.3%) BRS searches were conducted compared to 58 (22.6%) LIS searches.

There are several explanations for the usage disparity between vendors. The primary cause for this disparity was not attributable to inherent differences in the software capabilities of the two vendors--though there are significant differences. Nor was it attributable to the differences in cost structure, notwithstanding the significantly lower BRS connect hour rate. The primary reason for the greater use of BRS was simply the two subject areas for which there was the greatest demand for searches, education and psychology, happens to be the primary responsibility of the two BRS searchers. The lower connect hour rate for BRS did, however, cause a small part of the disparity as Anne Dayanandan, the only searcher who did significant amounts of searching on both LIS and BRS frequently chose to use BRS because of its lower cost. Emily Grimm's decision to search BRS almost exclusively, because of the cost factor and because of her greater familiarity with BRS, also contributed to the higher BRS connect hour total. Another factor contributing to the greater use of BRS was the use of BRS "housekeeping" databases such as MESG and AACT and the use of the BRS CROS database which is an index to all the BRS subject databases and for which, during this report period, there was no Lockheed equivalent.

As the database service continues to increase in volume and expand its range of databases, the vendor usage disparity will very likely decrease, especially since Emily and Randy, the two primary BRS searchers, have now received Dialog introductory and refresher training, respectively, and they will probably exercise their Dialog skills to take advantage of some of the Dialog software advantages and, more significantly, to provide access to Dialog databases which are not presently available through BRS.

With continued growth it is also possible that a third vendor, SDC, may be added. This may be necessary to increase the range of databases already offered by the Central Library as was explained in the section "Expansion of database service" earlier in this report.

Users

The primary users of the Central Library's bibliographic retrieval service are students; this group constituted 63.3 percent of the total user population. Though the distinction between graduate and undergraduate was not statistically recorded in the Committee's Log, the vast majority of these students were graduate students. The next two largest groups of users are staff and faculty; there were 14.8 percent and 13.5 percent, respectively, for the report period. Only 8.4 percent of the users were persons not affiliated with the University of Cincinnati and, all of these were persons affiliated with nonprofit organizations.

*These statistics do not include housekeeping searches, i.e. MESG, NEWS, and AACT.

The targeted population for the Central Library bibliographic retrieval service is the students, faculty, and staff of the University of Cincinnati, and the promotional efforts of the Committee have reflected this. Moreover, the Committee's first responsibility is service to this targeted group. However, the Committee also attempts to respond to the database search needs of outside users to help fulfull the community service responsibilities incumbent upon a state university and to help defray overhead costs of database searching by imposing surcharges for outside users.

Searcher Experience

After only 14 months of service the Committee's members have acquired an impressive amount of experience in online searching, including the array of training workshops enumerated on pages 2-3, "Searcher Training." Two measures particularly relevant to assessment of searcher experience are online connect hours and number of searches. Cumulative connect hours and number of searches for the period of January, 1980 through August 1980 are displayed in Table II. (Identical statistics for the first six months of searching were not cumulated.) Cumulative connect hours reflect online experience in the sense that this is time used employing software commands; this statistic is particularly illustrative of a searcher's experience with vendor software commands and database characteristics and capabilities. An inspection of Table II and also Table I, which gives connect hours by searcher and by database, reveals a point already commented upon, which is, the majority of demand for computer produced bibliographies has come from users in education and psychology, especially education. This explains the higher connect hour totals for Emily Grimm and Randy Roberts who do the primary searching in the respective areas of education and psychology. Anne Dayanandan, after returning from a leave of absence, began, however, to relieve Emily from the burdensome concentration of the education related searches. The lower connect hour figure for Wahib Nasrallah reflects not so much a low volume of searching but rather the nature of searching with business databases. That is, multidatabase searches were not as common or as prolific for business users as compared to education or social science users. This is probably related to the higher connect hour rate for business databases in general.

The number of searches conducted by each searcher, indicated in parentheses in Table II, represents much more than the online experience evident by connect hours. These figures represent the tremendous amount of time spent in preparation for the online activities. The significance of this measurement was described earlier in this report (page 14). There is a similar ranking among the searchers for this measure though the differences among them is reduced, and Anne and Wahib shifted positions, reflecting Wahib's greater overall experience.

Cost Recovery

The Central Library bibliographic database retrieval service is intended to be a partial cost recovery system. That is, the Committee attempts to recover online searching and print costs, but there is no attempt to recover all costs that are associated with the service, i.e. search aid and promotion costs, training expenses, costs related to searcher error and online housekeeping costs. Subsidization of these costs through user charges would be unfair and impractical as the service would then be prohibitively expensive to many of the users, particularly to those in the largest user group--students.

Table II

Central Library Bibliographic Database Service: Connect Hours and Searches by Searcher and by Month January, 1980 - August, 1980 *

	Jan.	Feb.	Mar.	Apr.	May	June	July	August	Total
Anne Dayanandan	-	-	-	-	-	2.07 (3)	2.13 (7)	2.00 (8)	6.20 (18)
Emily Grimm	10.72 (19)	4.83 (13)	3.76 (8)	7.33 (18)	5.54 (17)	5.07 (13)	1.32 (4)	3.80 (11)	42.37 (103)
Wahib Nasrallah	0.36 (2)	1.53 (8)	0.29 (3)	0.66 (3)	0.00 (0)	0.47 (5)	0.41 (4)	0.63 (3)	4.35 (28)
Randy Roberts	1.67 (6)	2.42 (4)	0.99 (4)	2.32 (7)	1.46 (3)	0.60 (2)	3.67 (11)	0.81 (2)	13.94 (39)
Total	12.75 (27)	8.78 (25)	5.04 (15)	10.31 (28)	7.00 (20)	8.21 (23)	7.53 (26)	7.24 (24)	66.86 (188)

* These statistics do not include searches on NEWS, MESG, or ACCT

The figures in Table III indicate the vendor monthly charges and the Central Library's charges to users for online searching and print costs. Until January, 1980 the Central Library offered database services at half price (excluding print costs) while searchers were acquiring valuable experience. The large negative differentials through December reflect this reduced charging rate. Since January, 1980, the Central Library has been operating on a partial cost recovery basis, i.e. recovering online and print costs. Only two months, February and April, of the report period in Table III show relatively moderate negative differentials. In both instances the negative differentials are attributable to searcher errors where the user was not charged the full online/print costs. Though the incidence of searcher error is expected to decrease, there will always be occasional logic or software command errors made by searchers due to the complex nature of database searching. An allotment for these occasional errors,--only very significant errors are redressed--was provided for in the Committee's budget recommendation (March 27, 1980).

Concluding Remarks

This report has indicated several areas in need of investigation by the Committee. A means for measuring and determining user satisfaction is desirable, simplification of records maintenance must be explored, the SDC databases must be evaluated to determine if there is a need to add SDC as a vendor, and the whole area of promotion requires some study once adequate staffing is assured. The purpose for these studies is to make the database service even more responsive to a larger population of users.

The Committee is very concerned that there be an adequate number of well trained searchers to ensure the deliverance of a responsive and effective bibliographic database retrieval service. In this regard, the training of searchers has been very satisfactory, and it has measured up to the recommendations put forth in the Committee's planning report. The number of searchers also has been adequate. These efforts must not, however, be subverted by an event which can have very disruptive effects, understaffing. Earlier, the point was made that a minimum of four searchers are necessary to effectively handle the current user demand, and five searchers will be necessary to satisfactorily meet the expected increase in demand. One of the Committee's searchers, Anne Dayanandan, resigned, and this has left the Committee understaffed. It is the hope of the Committee that a replacement for Anne can be found so that no disruption in services occurs. Presently, Clark Hallman, Assistant Head of Reference, is assuming some of Anne's searching load, but it is essential that a replacement be found for Anne.

The growth of the service has been significant and the Central Library can expect to experience a continuing growth in volume of demand. The growth, however, will, in part, be controlled as the Committee will continue to use restraint with respect to promotional activities. Nevertheless, increases in volume of demand will occur as library users become aware of the service and as they learn of the advantages of bibliographic database retrieval--the savings of valuable time, the enhanced bibliographic access, increased convenience, etc.

Table III

Computer Searching Cost Recovery 9/79-7/80

Month		BRS	LIS	Totals	Differential
1979 (1/2 price)					
September	vendor charge	72.53	n/a	72.53	
	Library charged	64.17		64.17	- 8.36
October	V.C.	141.23	42.92	184.15	
	L.C.	88.73	66.94	155.67	-28.48
November	V.C.	233.89	61.52	302.26	
	L.C.	114.49	44.55	159.04	-143.22
December	V.C.	357.15	144.31	501.46	
	L.C.	258.47	100.21	358.68	-142.78
1980					
January	V.C.	488.36	146.30	634.66	
	L.C.	459.49	155.59	615.08	-19.58
February	V.C.	266.25	180.14	446.39	
	L.C.	227.64	146.59	374.23	-72.16
March	V.C.	217.64	35.25	252.89	
	L.C.	210.68	32.98	243.66	- 9.23
April	V.C.	408.28	88.00	496.28	
	L.C.	352.59	90.23	442.82	-53.46
May	V.C.	279.32	15.12	294.44	
	L.C.	279.18	15.40	294.58	+ .14
June	V.C.	236.11	158.88	394.99	
	L.C.	232.08	152.90	384.98	-10.01
July	V.C.	217.79	153.00	370.79	
	L.C.	227.35	126.60	353.95	-16.84

The obvious consequence of this growth will be an ever increasing demand for searcher time. Searcher time including all those responsibilities detailed earlier, that are inherently related to the provision of these services--is a limited resource. This need not be a problem, however, if a replacement for Anne Dayanandan is found and if an additional searcher is added in 1981.

Presently, the Committee is pleased with the development of the bibliographic database retrieval services in the Central Library. Searcher training, as previously indicated, has been adequate and funding also has been satisfactory. Moreover, administrative support for the database service has been present since before the inception of the service. The Committee does, however, appeal for administrative consideration for defined fiscal support of Central Library database services.

Contingent upon adequate staffing, the Committee is prepared to handle the increases in demand for database produced bibliographies. Moreover, the Committee will continue to work on the improvement of the bibliographic database retrieval service here at the Central Library. This report will serve as a reference point from which the Committee can begin working on specific improvements. However, the Committee also hopes the reader has acquired from this report an improved understanding and appreciation for the Central Library's bibliographic database retrieval services.

Appendix A

Date	Search Number	Name*	User Class	Data Base	Vendor	Hours On Line	Citations Printed	Pages (BRS)	Cost of Search	Total Cost	Charge To User	NIU	Date Comp.	Notes and Searcher's Initial

*Please record number of intellectual queries per patron, (in parentheses) after first appearance of patron's name.

Appendix B

UNIVERSITY OF CINCINNATI
CINCINNATI, OHIO 45221
475-2411

Date:_____

Please fill out completely: Search no._____

Name_____Telephone no: Work_____Home_____

Department or Organization:_____

Check one. Faculty_____Staff_____Graduate Student_____Undergraduate Student_____

Mailing address:_____

_____

Subject of search: Please describe your subject in sentences, not keywords. Be as specific as possible.

List the keywords that in your opinion would best identify the subject content of your search.

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

How do you wish to limit your database search? Time period_____

English language articles only (Y or N)____All languages (Y or N)____Other languages_____

Known relevant and recent citations:_____

_____

_____

Bibliographic record desired: Check one.
Citation (author, title, journal, etc.)_____Citation with abstract (if available)_____

_____

DO NOT FILL OUT BELOW THIS LINE._____

Purpose of search:

Is it necessary for most of the information to be available locally?

Price ceiling_____

APPENDIX C

Bibliographic Database List
(Arranged by database abbreviation or acronym)

ABI	ABI Inform
AACT	Account (BRS)
AGRI	Agricultural Online Access (LIS)
AHL	America: History and Life
BOOK	Books Information
CAIN	Agricultural Online Access (BRS)
CROS	CROS-Database Search System (BRS)
DISS	Comprehensive Dissertation Index
ECER	Exceptional Child Education Abstracts
ECON	Economic Abstracts International
ERIC	ERIC
FTIN	Foreign Traders Index
HA	Historical Abstracts
LISA	Library and Information Science Abstracts
MC	Management Contents
MESG	Message (BRS)
MESH	Medlars
NCMH	National Clearinghouse for Mental Health Information
NEWS	NEWS (BRS and LIS)
NTIS	National Technical Information Service
NYTS	New York Times Information Bank
PAIS	Public Affairs Information Service
PHIL	Philosophers Index
PREM	Pre-med
PROM	Promt
PSYC	Psychological Abstracts
SBF	No longer available
SCI	Science Citation Index
SMIE	Smithsonian Institution
SOC	Sociological Abstracts
SSCI	Social Sciences Citation Index
USPSD	United States Political Science Documents

ADDENDUM

Table III

Month		BRS	LIS	Totals	Differential
1980					
August	V.C.	109.05	191.54	300.59	
	L.C.	104.99	177.53	282.52	-18.07